

ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 28

DATE: Thursday, June 13, 1991

BEFORE:

HON. MR. JUSTICE E. SAUNDERS Chairman

DR. G. CONNELL Member

MS. G. PATTERSON Member

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
on Thursday, the 13th day of June,
1991, commencing at 10:00 a.m.

VOLUME 28

B E F O R E :

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DR. G. CONNELL Member

MS. G. PATTERSON Member

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1 ---Upon commencing at 10:02 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is now in session.

4 THE CHAIRMAN: Mr. Kelsey?

5 MR. KELSEY: Thank, you Mr. Chairman.

6 RONALD TABOREK,
7 DAVID BARRIE,
8 JOHN KENNETH SNELSON,
9 JUDITH RYAN; Resumed

10 CROSS-EXAMINATION BY MR. KELSEY (cont'd):

11 Q. I'd like to move into acid gas and
12 your emission standards that you have to observe, but
13 I'd like to do it, first of all, in the context of
14 general policy. Again, since this is the environment,
15 Ms. Ryan would be the appropriate one.

16 I'd like to refer you to two parts of the
17 State-of-the-Environment Report for 1988 and 1989. The
18 one for 1988 is Exhibit 20. If you will turn to page
19 1, please.

20 DR. CONNELL: 19, I believe.

21 THE CHAIRMAN: 88 is No. 19, I believe.

22 MS. RYAN: The full report is 19.

23 MR. KELSEY: Yes, I am sorry. Right, the
24 executive summary.

25 DR. CONNELL: Page reference was?

 MR. KELSEY: Page 1 of the executive

1 summary, Exhibit 20.

2 Q. The paragraph in the middle that
3 starts with "Environmental concerns," do you have that
4 paragraph?

5 MS. RYAN: A. Oh, okay, the
6 introduction.

7 Q. That is right, under section 1, the
8 introduction, it says:

9 "Environmental concerns have a high
10 profile within Ontario Hydro. In his
11 corporate initiatives for 1988, Robert C.
12 Franklin, Chairman and President of
13 Ontario Hydro, stressed that the goal of
14 providing reliable power at low cost must
15 be fully integrated with a commitment to
16 the environment. The
17 State-of-the-Environment Report is one
18 measure of that commitment."

19 Then he goes on:

20 "The public has consistently rated the
21 environment as a major concern and is
22 showing an increasing willingness to pay
23 for its protection."

24 Can we take it that the full integration
25 of the environmental policy with the low cost policy

1 means that Hydro treats those two equally?

2 A. It means that they will both be a
3 part of all decision making.

4 Q. Equally?

5 A. In making decisions, it is never
6 possible to treat all considerations equally. They
7 have to be there and given the specific circumstances.
8 They will have different weightings. But they all need
9 to be there.

10 Q. So, sometimes one may have priority
11 and at other times the other, would that be fair?

12 A. That is correct.

13 MR. TABOREK: A. Mr. Kelsey, I think of
14 the way we prioritize our objectives as akin to a
15 juggler who has several balls that he has to keep in
16 the air. They all receive equal treatment. One may
17 receive special treatment at a particular point in
18 time.

19 Q. Isn't that what I just said?

20 A. I just wanted to confirm that.

21 Q. Thank you.

22 On the next page, page 3, there is an
23 indication as to how the goal is to be achieved, and it
24 indicates that:

25 "Ontario Hydro wishes to assume a

1 leadership role dealing with the
2 potentially adverse effects of its
3 operation, and a strong proactive
4 focus..."

5 And then lower down:

10 MS. RYAN: A. That is a goal, not a
11 policy.

Q. There is a difference?

16 Q. As I understand it, the goal is to
17 achieve the greatest overall net benefit to the
18 problems.

19 A. Yes.

20 Q. And it says:

23 So, the matters that I just referred to
24 are ways of achieving the goal

25 A. That is correct.

1 Q. Thank you.

2 The 1989 State-of-the-Environment Report,
3 Exhibit 21, refines that to some extent. Page 3,
4 section 2.2. The first large paragraph starting with
5 "Preservation of the environment..." Ms. Ryan?

6 A. Yes.

7 Q. It says:

8 "Preservation of the environment is no
9 longer just a cost of doing business. It
10 is our business. Environmental
11 protection must be an integral part of
12 planning and operations."

13 And then lower down, in the same
14 paragraph:

15 "We will seek to prevent, not just
16 mitigate, environmental problems."

17 Does that not indicate that the
18 environment now is as much part of the business of
19 Hydro as the production of power and energy?

20 A. It means that in the production of
21 power and energy, decision making has to have
22 integrated into it considerations for the environment.

23 Q. Well, doesn't it go further than
24 that? It says that "preservation of the environment is
25 our business."

1 A. To the extent that it is part of our
2 production of power business, yes.

3 Q. Is that limitation contained in this
4 State-of-the-Environment Report?

5 A. I think it is implicit in the
6 business we are in, but I don't think that takes away
7 from the comment that in carrying out that business, we
8 are paying attention to the environment.

9 Q. So, you are saying then that this
10 public report, of Hydro on the environment, has to be
11 read subject to certain limitations? That we can't
12 take...

13 A. I don't see it as a limitation.

14 Q. We can, I assume, take the words at
15 their face value, the words of this corporate document?

16 A. In context that it is an Ontario
17 Hydro report, yes.

18 Q. What does that mean?

19 A. That means that we are in a business,
20 and we have provided a report as to how we will and are
21 trying to integrate environmental considerations into
22 it, and I don't think you can consider one without the
23 other.

24 But having said that, I don't think that
25 takes away from the efforts that we are making in

1 trying to address environmental consideration in all
2 parts of our business.

3 Q. I won't belabour this, so could I
4 have a yes or no answer to this? Is preservation of
5 the environment the business of Ontario Hydro, along
6 with other things, or is it not?

7 A. It is an integral part of our
8 business.

9 Q. There was reference yesterday to
10 Exhibit 41, which is the report to the Lieutenant
11 Governor in Council with regard to acid gas, and it is
12 dated January 31, 1989. Were there any reports before
13 January 31, '89 on acid gas, that you are aware of?

14 A. Perhaps Mr. Taborek could...

15 MR. TABOREK: A. There are reports given
16 to the government quarterly and semiannually, pursuant
17 to regulations.

18 Q. But was this the first significant
19 report, comprehensive one?

20 A. The reports were of different types.
21 This was an overview report. The others were with
22 respect to progress up to that time.

23 Q. So, this was...

24 A. They were all significant.

25 MS. RYAN: A. As a matter of course for

1 a great number of years, we have reported acid gas
2 emissions to the Ministry of the Environment monthly,
3 as part of a compliance reporting system.

4 Q. Was Exhibit 41 the first overview
5 report?

6 MR. TABOREK: A. It was the first report
7 of that type, yes.

8 Q. Which is an overview report, you just
9 said.

10 A. Yes.

11 Q. Thank you.

12 You started monitoring, Ontario Hydro,
13 started monitoring acid gas emissions and sulfur
14 dioxide emissions, I believe, in the early 1970s.

15 A. Yes.

16 Q. So that Ontario Hydro knew in the
17 early '70s of, presumably, the volume of emissions of
18 sulfur dioxide?

19 A. Would you excuse me for just a moment
20 Mr. Kelsey? I'd like to consult.

21 MS. RYAN: A. We don't measure sulfur
22 dioxide emissions as sulfur dioxide. We calculate
23 sulfur dioxide emissions based on sulfur content in the
24 coal and coal consumption. And yes, we have been doing
25 that since the early, mid '70s, and yes, we knew the

1 tonnage of sulfur dioxide being emitted.

2 Q. And the harmful effects?

3 A. Having said that we emit sulfur
4 dioxide, that doesn't necessarily translate immediately
5 into harmful effects.

6 MR. TABOREK: A. In the 1970s, the focus
7 from the point of view of sulfur was with respect to
8 ambient air quality. That is, the emissions measured
9 close to the stations or in the proximity of the
10 stations.

11 The evidence with respect to the harmful
12 effects of acid rain began to accumulate in the late
13 '70s.

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...

1 [10:15 a.m.] The initial moves to control it took
2 place in the early 80s. Hydro was one of the first
3 utilities, that I'm aware of, to recognize that acid
4 rain was a problem that had to be dealt with and to
5 publicly come to support governments in its control.

6 The acid rain problem is not a local
7 deposition problem but a problem in which very small
8 quantities accumulate over long periods of time, years
9 and decades, and cause problems distant, and they call
10 for frequently different solutions.

11 So, while we took action in the 70s with
12 respect to local emissions, we took action in the 80s
13 with respect to the long range transport of emissions,
14 i.e., the acid rain problem.

15 Q. In page 14 of Exhibit 137, the
16 overheads, where you indicate the volume of that --

17 THE CHAIRMAN: Is that not 136?

18 MR. KELSEY: Sorry, 136.

19 THE CHAIRMAN: Page 14.

20 MR. KELSEY: Page 14.

21 THE CHAIRMAN: Do you want that put up,
22 Mr. Kelsey?

23 MR. KELSEY: Please, sir.

24 Q. Is there any significance to starting
25 with the year 1981?

1 MR. TABOREK: A. The --

2 Q. Well, is there?

3 THE CHAIRMAN: He is trying to answer.

4 Give him a chance.

5 MR. TABOREK: January 31, 1981 was the
6 year in which the first -- the date on which the first
7 acid gas control regulation was imposed.

8 Q. That's the reason. I wonder because
9 in some of the contents of Exhibit 136, there are
10 various years chosen, like on page 40, dealing with
11 fossil incapability, it starts in 1971, and I wondered
12 why the 1981 was chosen in this context.

13 Do you know what prior to 1981 would show
14 in terms of --

15 A. Yes. Near enough, around 1970, it
16 would be very small and then it would rise nearly
17 linearly to the amount shown there. So, it would be
18 sloping up and sloping down.

19 Q. And the increase then, in the 70s,
20 was that related to the increased use of fossil plants?

21 A. Yes.

22 Q. Or, I was going to ask, or the type
23 of coal that was being used?

24 A. The type of coal -- it's due to the
25 increased use in fossil plants because roughly

1 speaking, as we used more fossil plant we tended to
2 lower the sulphur content to the coal. For instance,
3 there have been sharp declines in the sulphur content
4 of the coal which are documented, I believe, in Exhibit
5 41, particularly marked with our acquisition of western
6 Canadian coal which is in the mid to late 70s.

7 Q. Actually, it's at page 15 of Exhibit
8 136. There is an overhead dealing with percentage,
9 sulphur content of coal as fired.

10 A. Yes. Does that also start in the
11 80s?

12 Q. '82.

13 A. Yes, because there are significant
14 declines before that, in the 70s, as well.

15 Q. So, the amount of fossil generation
16 was increasing?

17 A. Yes.

18 Q. But, at the same time, you were
19 trying in the 1970s to reduce the sulphur content?

20 A. Yes. Including switching Hearn from
21 coal to gas, which was early 70s, if my memory serves
22 me right.

23 Q. And then the regulation came into
24 effect in 1987?

25 A. 1981.

1 Q. Well, the present regulation with
2 regard to the targets.

3 A. Yes. It was passed in '81 and it set
4 '86 as the initial year of implementation.

5 Q. Was that regulation a result of
6 negotiations between Hydro and the government?

7 A. Yes.

8 Q. It wasn't something that was imposed
9 from the outside without reference to Hydro's ability
10 to meet the regulated emission limits?

11 A. No.

12 Q. But, in effect, Hydro was saying,
13 well, this is what we can do, these are the targets
14 that we think we can meet, and this is the regulation
15 that we would be content with.

16 A. No. What we did, as the issue grew
17 serious in government minds, we had been studying it in
18 parallel. We independently arrived at a corporate
19 position that it was a problem that had to be dealt
20 with. We prepared, for the government, a report which
21 gave the government choices about the action they would
22 take with respect to Hydro, and in particular, I am
23 thinking back to work done around 1980, that we gave
24 them choices of reducing by various quantities, I think
25 by cutting us by 25, 50, and 75 per cent, and we gave

1 them a choice of the rapidity, or we described to them
2 the implications of imposing the regulation with
3 varying amounts of rapidity. I believe we outlined for
4 them, and again from memory, the implications of
5 putting the regulation on in one year and three years
6 and five years.

7 What you would expect with something like
8 that, we noted, was that if you impose a regulation
9 quickly for the same degree of protection, for the same
10 degree of reduction, it is going to cost you a great
11 deal more than if you give time to get lower cost
12 techniques in place. And having provided that
13 information to the government, the government decided
14 on the amount of the cut and the timing of the cut, and
15 we confined our comments to the implications of those.

16 Q. So, in effect, you gave the
17 government choices you say.

18 A. Yes. We described the implications
19 of the choices they would make.

20 Q. Hydro has generated its own standards
21 and criteria for reliability, for example, and
22 performance and delivery and generation. Would this
23 then be, this process that you have just described, a
24 process of generating its own environmental standards?

25 A. When two people work together on

1 something, and each have responsibilities in different
2 areas, it gets very difficult to say what is done on
3 our own.

4 When we do something, people who have
5 responsibilities for some part of that, naturally are a
6 part of it. In this case, we were working within
7 direction given to us by the government.

8 And incidentally, on reliability, I don't
9 believe it is too simple to say that we do it on our
10 own.

11 Our reliability criteria are the result
12 of, naturally, our own work, as is anything we do, but
13 extensive discussions with government in public,
14 including direction given to us by legislative
15 committees, and evidence of that direction is also
16 tabled.

17 MR. SNELSON: A. I believe it was the
18 exhibit of the Coalition of Environmental Groups
19 attached relevant pages from the report of the 1976
20 Select Committee of the Legislature.

21 Q. The reference is made in your
22 evidence, Ms. Ryan, to the scrubbers that are currently
23 under construction at Lambton, in operation by 1994.

24 MS. RYAN: A. Yes.

25 Q. The practice or the policy of

1 constructing and installing scrubbers, when did that
2 start, not at this station but generally? Do you know?

3 MR. TABOREK: A. Perhaps I can pick that
4 up in that I have dealt with that issue for some time.
5 Could you clarify your question, please?

6 Q. Yes. There are scrubbers under
7 construction for Lambton.

8 A. Yes.

9 Q. So, they are not actually in there.
10 It is not anticipated they will be there until 1994.

11 A. That's correct.

12 Q. When were scrubbers first introduced
13 into fossil generating plants in Ontario?

14 A. Well, there have been none yet
15 introduced. These will be the first in Ontario.

16 Q. And how long have they been available
17 for use as best available technology?

18 A. Well, scrubbers have been available
19 for use since roughly 1970.

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...

1 [10:24 a.m.] They are not necessarily the best
2 available technology. I think you would have to define
3 what you mean by best available to address that in more
4 detail.

5 Q. Well, presumably the scrubbers that
6 are currently under construction for Lambton are the
7 best available technology.

8 A. The reason I'm hesitating is, our job
9 is to control acid gas emissions within the program
10 outlined at least cost, and there is no one technology
11 that is best. There is no one approach that is best.

12 What Exhibit 41 pointed out was that
13 there are a large number of actions that have to be
14 taken, and no one action, even scrubbers, would be
15 adequate for the task. And we, in effect, ranked
16 scrubbers -- well, I tend to think of measures to avoid
17 coal use, measures to reduce the sulfur content, and
18 then control technology measures as roughly 1, 2, 3 in
19 our hierarchy. And they come into play in meeting
20 these objectives in the least cost pattern in the
21 present circumstances in '94. So, they are not the
22 best available technology to meet the obligation the
23 government has imposed on us.

24 Q. Aren't scrubbers the best from the
25 point of view of cost effectiveness?

1 A. No. No, by far, I would think demand
2 management is far better. I would think using less
3 coal and more nuclear is far better.

4 Q. All right, but in the context, I mean
5 no doubt there are many other ways, and certainly
6 Northwatch would be in favour of them. But dealing in
7 the specific context of acid gas going into the air,
8 isn't the scrubber the best available technology for
9 the reduction of the sulfur dioxide content?

10 A. I will answer yes, in the context if
11 you withdraw from looking at the global objective, and
12 you zoom in on a narrow part of your program, now I
13 wish, having avoided use of coal plant, having lowered
14 the sulfur content, now what is the best hardware to
15 bolt on, then the answer would be yes, scrubbers.

16 Q. But you've now got to that point,
17 presumably?

18 A. Yes.

19 Q. Because they are putting in scrubbers
20 in Lambton.

21 A. Yes, we have gone through all of our
22 options, as outlined in Exhibit 41, and we are at the
23 point that scrubbers are now the next best step to
24 make.

25 Q. Have scrubbers been in common use by

1 other utilities in North America for some time?

2 A. Yes. Utilities that have large
3 amounts of coal fired generation have been using
4 scrubbers for some time.

5 MR. SNELSON: A. Principally on newly
6 built plants.

7 MR. TABOREK: A. Yes, on new built
8 plants, not retrofits.

9 Q. Okay, in terms of...

10 A. We are pioneering on the retrofitting
11 of scrubbers, I think.

12 Q. In terms of compliance with nuclear
13 standards, Ms. Ryan, you indicated in your evidence in
14 chief, page 2759, of Hydro's achievement in keeping the
15 emissions at one per cent of permissible. But in terms
16 of meeting legal requirements, is radioactive waste
17 stored at the Pickering plant?

18 A. There are small amounts of
19 radioactive waste stored at the Pickering plant in
20 agreement with the licence conditions. Most of the
21 solid radioactive waste is stored at the waste site at
22 the Bruce location.

23 Q. Does a lot of this waste result from
24 the retubing at Pickering?

25 A. There is waste from the retubing,

1 yes.

2 Q. Dry storage modules?

3 A. Yes.

4 Q. Is there permission for the storage
5 of those at Pickering?

6 A. My understanding is that there is
7 agreement with the AECB for storage of that specific
8 waste at Pickering.

9 Q. Discussions are being held, as I
10 understand it, with AECB for the purpose of arriving at
11 permission to store, but my understanding is that there
12 is, in fact, no permission yet, other than at Bruce.
13 There is no permission to store these at Pickering.

14 Is that your understanding?

15 A. My understanding is that for the
16 waste produced through the retubing process, there was
17 permission to store, and that that is being
18 re-evaluated for the specifics on that. The people on
19 Panel 9 would have more detail.

20 Q. Because in my note it indicates that
21 the response to Interrogatory 9.7.34 indicated that all
22 low level wastes are safely stored and monitored at the
23 Bruce facility at the present time.

24 A. For the detail of that, you would
25 have to ask Panel 9. Certainly the Bruce site is where

1 the majority of the low level solid waste is
2 transported for long-term storage. I believe, perhaps,
3 the retubing waste is classified as intermediate waste,
4 but again, I would suggest you address that to Panel 9.

5 Q. All right, I will do that, because
6 there is an article in Nuclear Engineering
7 International entitled - and it is by Hydro employees -
8 "Dealing With the Waste from the Pickering Retubing."
9 Would you be familiar with that in an amount of detail,
10 or would that be preferable to leave that for the
11 nuclear panel?

12 A. That would be for the nuclear panel.

13 Q. Maybe Mr. Snelson can deal with this
14 more general question.

15 Would you agree that the factors that go
16 into determination of the existing system, and the
17 factors that have been described in terms of
18 reliability and reserve, involve a great deal of
19 judgment and selection, and are not just part of a
20 numbers game, part of a scientific analysis?

21 MR. SNELSON: A. There is judgment in
22 most parts of our business, and it is significant. I'm
23 presuming that your question is referring to the
24 specifics of the capabilities of the existing system
25 projected into the future as the base of the plan, and

1 that is where the reliability comes in, and there is
2 judgment in that, yes.

3 Q. I think it goes further than that,
4 doesn't it? That it should be understood that the
5 existing system really is the product of particular
6 choices and selections and judgments that have been
7 made along the road by Hydro, and that there is nothing
8 predetermined about the system, nothing written in
9 stone?

10 A. It is the function of all past
11 planning decisions that were based upon analysis and
12 judgment, and it is engraved in stone, because it
13 exists. That is what we have now.

14 Q. But not necessarily that it has to be
15 engraved in stone in the future.

16 A. It can be adjusted in the future,
17 yes.

18 Q. Well, it is considerably, isn't it?
19 For example, the changes that we have seen in this
20 short period of time reducing, for example, the factor
21 in relation to public appeals, the effect from reducing
22 it from ten per cent to two per cent, which would
23 appear to be a significant change in a short period of
24 time. That is one.

25 A. It is a change. It is significant

1 but not a very large change.

2 Q. Another one is the reduction of the
3 number of system-minutes, from 25 to 10. Do you agree
4 that that is significant?

5 A. That was a consequence, primarily, of
6 the change that we have already discussed in public
7 appeals. The significant factor for the capability of
8 the future system is the impact that these have on
9 reserve margin, and the judgments and analysis about
10 reserve margin do show a small change for the future,
11 but not a large change.

12 Q. In terms of determining customer
13 costs, there are judgments made in that context,
14 judgments made as to how much reserve there should be?

15 A. Yes, and we factor into our
16 evaluations our understanding of the degree of
17 confidence that can be placed in those numbers.

18 Q. I think there have been changes in
19 the life expectancy of fossil and nuclear stations?

20 A. Over the past ten years there have
21 been some changes, as Mr. Taborek discussed in his
22 evidence.

23 Q. I think, actually, in relation to all
24 of them there have been changes, increases in the lives
25 of the hydraulic, nuclear and fossil units.

1 A. The normal way of managing a business
2 is to change, to accommodate new information and
3 changing circumstances.

4 Q. A part of that process is assessing
5 the risk from time to time, which also changes?

6 A. Yes. I'm not sure what risks you are
7 referring to, but in general, yes.

8 Q. Well, the risks of interruption would
9 be one of them. Then the decision not to put a dollar
10 figure on environmental cost, that presumably is a
11 matter of judgment and policy, but proceeding rather on
12 a quantification of effect principle.

13 A. Yes, and that issue is intended to be
14 addressed in Panel 3.

15 Q. Can you tell me why there is not a
16 great deal of description in the Demand/Supply Plan of
17 the transmission system?

18 A. For the reason that the primary focus
19 of the proposals that have been made are generation and
20 alternatives to generation, including demand
21 management, non-utility generation, purchases, and the
22 consideration of transmission was limited to those
23 aspects of transmission that could affect the choice of
24 generation options and alternatives to generation
25 options.

1 Q. But the transmission system for most
2 years, except '89, I think, has been the most
3 significant cause of forced outage, hasn't it?
4

5 A. Yes, and the solution is to improve
6 the transmission system in most cases.
7

8 Mr. Barrie has testified as to the --
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...

1 [10:40 a.m.] Q. Do you think it is possible then to
2 justify the transmission needs without a full
3 description and explanation of the transmission system?

4 A. In general terms, the approvals that
5 are being sought for transmission are ones of rational
6 and need, they are not ones of particular siting or
7 impact in particular locations. And that will be dealt
8 with in subsequent processes.

9 To the extent that we need to describe
10 the transmission inputs for that purpose, then we
11 either have done in the existing documentation or we
12 will supplement it through direct evidence on Panel 7.

13 Q. Do you think it is possible to a
14 assess the reliability of the system as a whole without
15 including transmission?

16 A. No.

17 Q. Well, isn't that what has been done?

18 A. No.

19 Q. You say that you have taken into
20 account transmission?

21 A. In assessing --

22 Q. In this assessment of the reliability
23 of the system as a whole.

24 A. This is an assessment of the
25 reliability as it is affected by generation, and that

1 has been done for the purpose of selecting a generation
2 reserve margin, and for that purpose it's a sufficient
3 evaluation.

4 Q. Isn't distribution equally important?

5 A. Yes.

6 Q. Has it been given equal importance,
7 do you think, in this Demand/Supply Plan?

8 A. Distribution is of overriding
9 importance, distribution reliability is of overriding
10 importance in the design of the distribution system.

11 Q. Which is part of the existing system?

12 A. It is part of the existing system,
13 yes.

14 Q. The relationship between the two is
15 very important, too; isn't it?

16 A. The relationship between them is
17 something that you have to take into account to the
18 degree it affects the decisions that you are trying to
19 make in the particular process that is underway.

20 Q. Has any consideration been given to
21 transmission needs and problems in the proposals for
22 siting of new generation in Northern Ontario?

23 A. This proceeding only has sites
24 associated with hydraulic developments. Other
25 developments, the siting is yet to be decided.

1 Q. Well, yes and no. There are only
2 certain available sites; aren't there. The choice is
3 limited. You don't have the whole of Northern Ontario
4 at your disposal. There are certain obvious sites that
5 you have identified, Ontario Hydro has identified.

6 A. Ontario Hydro has identified
7 illustrative sites, but that does not exclude the
8 possibility that other sites may be considered in the
9 siting process.

10 Q. But again, those sites also are
11 limited, aren't they? There are only certain ones that
12 are possible. What I am asking is whether, in looking
13 at those sites, the transmission implications have been
14 considered.

15 A. In any siting process transmission
16 implications are significant, and I have said that
17 before.

18 Q. So, is the answer to my question,
19 yes, that when I ask whether consideration is given to
20 the transmission needs and problems in proposals for
21 siting in Northern Ontario?

22 A. Where I am balking is the proposals
23 for siting in Northern Ontario, and the hydraulic
24 stations are mostly in Northern Ontario and to that
25 extent, in evaluating those hydraulic stations there

1 has been consideration given to the transmission
2 implications of that.

3 With respect to illustrative sites for
4 fossil and nuclear plant, then they are not proposals,
5 but there has been illustrative transmission
6 implications calculated for plans that include those
7 sites.

8 Q. Could you have a look at
9 Interrogatory 2.6.32, and this is in connection with
10 the - and I don't know who this question should be
11 directed to - unbundling of tariffs. This has to do
12 with the acceptability of interruptions to customers.

13 THE CHAIRMAN: 2.6.32, is that right?

14 MR. KELSEY: Yes, Mr. Chairman.

15 Q. I think in response to that
16 interrogatory, it was indicated that there are three
17 alternative tariffs.

18 MR. BARRIE: A. Are you referring to the
19 three alternatives in the demand discount service?

20 Q. Yes, that's right.

21 A. Well, we must be clear that that only
22 applies to a very small number of customers.

23 Q. Okay, that's what I was going to ask,
24 Whether consideration has been given to a more
25 extensive range of options for customers?

1 A. The only options that I am aware of
2 are firm customers and customers who are covered by the
3 demand discount service. That's the current situation.
4 I don't know if there has been other consideration
5 though.

6 MR. TABOREK: A. In the area of demand
7 management there are a number of measures that will be
8 discussed in which different types of services are
9 offered at different rates, including things like
10 time-of-use rates to encourage load shifting, and other
11 funds provided to encourage people to a more efficient
12 use of electricity.

13 Q. So, you say that consideration then
14 has been given to a more extensive range--

15 A. Yes.

16 Q. --of options?

17 A. Yes. Many of them will be discussed.
18 They come under the heading of demand management
19 measures and that's Panel 4. But they also benefit
20 reliability in that if load is shifted out of a peak,
21 one does not have to provide reserve margin for it.

22 Q. Because they also have an impact,
23 don't they, on the relationship between customer cost
24 and supply cost?

25 A. Yes.

1 Q. Example, you have done - if I can
2 find the overhead number - a curve showing -- yes, it's
3 page 29 of Exhibit 136, where you have a straight line
4 curve indicating total cost of electricity to customer.
5 Page 29.

6 A. Is this the curve, Mr. Kelsey?

7 Q. Yes, that's right.

8 The curve at the top, total cost of
9 electricity to customers which you show as a straight
10 line, isn't that, in fact, in practice --

11 THE CHAIRMAN: Where is the straight
12 line?

13 MR. KELSEY: Well, a straight line in the
14 sense of not a wavy line. It's a curved line.

15 MR. TABOREK: It's a smooth curve.

16 MR. KELSEY: It's a smooth line.

17 MR. TABOREK: Smooth curve, yes.

18 MR. KELSEY: I have got my glasses off.

19 Thank you, Mr. Chairman.

20 Q. A smooth line, right. So that I get
21 the terminology straight, what would it be called if it
22 was wiggly line? I am sure wiggly is not the
23 scientific word?

24 MR. TABOREK: A. Near enough.

25 Q. That's a mean, isn't it?

1 A. Yes.

2 Q. In other words, you have got various
3 costs for various customers?

4 A. Yes.

5 Q. So, it is sort of - and I am not
6 suggesting you intended to mislead - it's a little
7 misleading, I think, to have it as a smooth curve. As
8 I say, I am not suggesting you are intending to
9 mislead, but it's not the total picture.

10 A. I think, if I understand your point,
11 it would probably be smooth but there would be a number
12 of curves like that.

13 Q. To represent the different kinds of
14 customer?

15 A. Yes.

16 Q. Because the cost to each group of
17 customers varies?

18 A. Yes.

19 Q. And would that then be equally true
20 of the line for cost of customer interruptions as well?

21 A. Well, rather it is the -- I'm sorry,
22 I was not precise enough.

23 It is the fact that the cost of customer
24 interruptions could be different for different people,
25 that if you disaggregated it would then cause the

1 disaggregation of the total.

2 Q. Right. That one line would have the
3 impact on the other line?

4 A. That's correct.

5 But, if I may just take one step further.

6 You will find in Exhibit 140 curves of this nature
7 where different amounts of customer cost are described,
8 and in the region of the minimum, the effects of very
9 large differences in customer cost have very little
10 difference on the reserve margin or the reliability
11 level you would select.

12 Q. Would that also have an impact on the
13 cost of supply? Would that vary as well?

14 A. No.

15 Q. Or would that remain cost constant?

16 A. The cost of supply line would remain
17 essentially the same, yes.

18 Q. Would remain constant, right.

19 So, the two lines that would vary would
20 be the cost to the customer of the interruptions--

21 A. Yes.

22 Q. --and the total electricity cost?

23 A. Yes.

24 Q. Fine. So, wouldn't it be possible,
25 then, to do an analysis of the variations in types of

1 customer, and the costs to each type of customer, and
2 then use that as a basis for a much broader selection
3 of tariffs and of acceptable degrees of interruption?

4 A. Well, we have done that, and we have
5 reported on it in the various exhibits. And I think we
6 have noted that we are indeed acting on that principle
7 to the degree that it is effective and efficient.

8 We have indicated our interruptible
9 customers, we have indicated the time-of-use rates, we
10 have indicated -- and the demand management people will
11 describe more programs where we have implemented that.

12 Having said that, the sum of all that is
13 there is not a significant difference on the reserve
14 margin that would be applied for future system
15 expansion of the existing system by virtue of the
16 rationale I have given you.

17 Q. But it is the combination of the two
18 that determines the reserve?

19 A. Yes.

20 Q. Supply cost and customer interruption
21 cost?

22 A. Yes.

23 Q. Are you saying that the more
24 extensive consideration has been given other than what
25 is indicated in response to Interrogatory 2.6.32?

1 A. Well, I think that is a direct
2 response to the interrogatory, but there are other
3 factors, as well.

4 Q. And other tariffs, other than the
5 ones indicated?

6 A. Yes. Well, under demand management
7 measures, I have indicated a number of demand
8 management measures.

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...

1 [10:54 a.m.] Q. But, so that I'm clear, 2.6.32 is not
2 a comprehensive description of the various options
3 available to customers? That is what I'm trying to
4 find out.

5 A. I think within the area in which we
6 are replying, yes, and I have indicated that there are
7 other areas in the demand management that are very
8 closely related.

9 MR. KELSEY: Perhaps I can deal with them
10 more directly then in that panel.

11 That completes my questioning, thank you.

12 THE CHAIRMAN: Thank you, Mr. Kelsey.

13 Ms. Couban?

14 MS. COUBAN: Thank you, Mr. Chairman. I
15 will be referring to Exhibit 87, which is the Review of
16 the Generation Reliability Planning Criteria, 1991. I
17 will also be referring to Exhibit 146, which is the...

18 THE CHAIRMAN: 146?

19 MS. COUBAN: 146, the government review,
20 blue document.

21 THE CHAIRMAN: Yes.

22 MS. COUBAN: And Exhibit 21, which is the
23 1989 State-of-the-Environment Report.

24 I will also be referring to a number of
25 transcript volumes; Volume 16, 17, 23 and 25.

1 CROSS-EXAMINATION BY MS. COUBAN:

2 Q. If I could begin with you, Mr.
3 Taborek, on the topic of **customer interruption costs**,
4 you have had a discussion with a number of intervenors
5 on this subject, and I'd like to deal with a response
6 that you gave to Dofasco's counsel during
7 cross-examination.

8 I believe that during questioning by Mr.
9 Bader for Dofasco, you made it clear that one of the
10 tools that Ontario Hydro uses to estimate these costs
11 of **customer interruptions** is **customer surveys**, is that
12 correct? I can refer you...

13 MR. TABOREK: A. Yes, may I -- could you
14 refer me to the volume of the transcript?

15 Q. Yes. Volume 23, page 4156, beginning
16 on line 18. The question by Mr. Bader was:

17 "You mentioned surveys. Would the
18 survey include clients or individual
19 consumers such as my client, Dofasco?"

20 Answer: "Yes."

21 Question: "And what conclusions have
22 you arrived at as a result of those
23 surveys?"

24 Answer: "The survey results are
25 recorded in two documents, Exhibit No.

1 140, where some of the early survey
2 results for various customer classes are
3 reported in figure 2-4, for example, and
4 in Exhibit 87, where the updated numbers
5 we are now using are also reported."

6 A. The reason I'm a little puzzled, Ms.
7 Couban, is I believe your question said it was one of
8 the tools we used?

9 Q. Yes.

10 A. And I wasn't aware that I had said
11 that. It is the tool we use, yes.

12 Q. It is the only tool, is that correct?
13 Is that more correct than the...

14 A. For determining customer interruption
15 costs?

16 Q. Yes.

17 A. Yes, and I wasn't aware that I had
18 said that it was one of...

19 Q. I don't think you did, actually. I
20 was assuming it was only one of a number. Thank you
21 for correcting that.

22 A. Yes.

23 Q. So, the last surveys then or the most
24 recent surveys you referred us to were in Exhibit 87,
25 and I think specifically you took us to page 81 of

1 Exhibit 87.

2 A. Again, if I may, the last surveys,
3 the results of previous surveys used in this report are
4 in Exhibit 87.

5 Q. Yes.

6 A. And the page number, please?

7 Q. Page 81, section 4.6, customer
8 interruption costs.

9 Now, it is my understanding that the last
10 such surveys were done in the early 1980s, is that
11 correct?

12 A. The University of Saskatchewan
13 surveys or the Hydro surveys?

14 Q. Hydro surveys, 1976 and '79, and then
15 I understand there was a University of Saskatchewan
16 survey done in the 1980s--

17 A. Yes.

18 Q. --is that correct?

19 Isn't it true that such costs could get
20 out of date rather quickly, such customer interruption
21 costs?

22 A. No, is my answer. If one word has to
23 be chosen, no.

24 There would be changes, we are dealing
25 with averages, and the end result will not change

1 dramatically, and dramatic changes do not significantly
2 effect the reserve margin, so my simple answer is no.

3 Q. So, Ontario Hydro is confident that
4 using results obtained in the late '70s and early 1980s
5 is an accurate picture of the customer interruption
6 costs in the 1990s?

7 A. Yes.

8 Q. Thank you.

9 Now, Mr. Thompson, cross-examining for
10 the Ontario Federation of Agriculture, asked some
11 questions also about customer interruption costs and
12 how they were calculated. And I believe that you
13 answered to Mr. Thompson in Volume 25, page 4533,
14 beginning on line 5, where he questioned:

15 "So, the costs then would be the costs
16 to remedy the outage; not the actual
17 effect of the outage, itself?"

18 Answer: "Not the consequences of the
19 outage."

20 Question: Not the consequence of the
21 outage, okay."

22 Answer: "Now, in particular, the
23 example you take. Various terms are
24 being used as externalities, indirect
25 costs, et cetera. There are many other

1 costs that are recognized that could
2 be -- that might be occurring, but what
3 we attempted to try and pin down was
4 simply the direct cost."

5 My question to you is, why is it that
6 consequences of interruptions are not calculated?

7 Logically, it would appear that that is
8 the more relevant number to hospitals and industries
9 and industry such as Dofasco. So, why is that Ontario
10 Hydro does not calculate the consequences of such
11 interruptions?

12 A. Excuse me for a moment.

13 I think we felt it appropriate to rely on
14 the costs reported to us by the customers.

15 THE CHAIRMAN: Felt it is what?

16 MR. TABOREK: Appropriate to rely on the
17 costs reported to us by the customers.

18 MS. PATTERSON: But they had to be given
19 some direction about how to report.

20 MR. TABOREK: Yes.

21 MS. COUBAN: Q. So, it is not a matter
22 that it is not possible to calculate the consequences,
23 it is just that you felt it wasn't necessary to do
24 those types of calculations or surveys.

25 MR. TABOREK: A. That was also in my

1 mind, except that possibility, you have to add to the
2 question of possibility the fidelity of the information
3 and --

4 Q. Fidelity?

5 A. The degree to which it reflects
6 reality, and the degree to which that would influence
7 the decision that you are looking at, and I wouldn't
8 use the word -- well, impossible, very difficult not to
9 a sort of quibble. It would be very difficult to gain
10 accurate information of that type.

11 It is difficult enough to get the direct
12 information, for example, and then having got it, it
13 has a relatively small impact, as we have testified on
14 the generation reserve margin that you would end up
15 with, and -- well, perhaps I'll just stop there.

16 Q. Fine, thank you.

17 If I could move on to some questions
18 about the **depreciation review committee and the life of**
19 **existing stations**, I believe these questions are still
20 directed to you, Mr. Taborek.

21 In your direct evidence at Volume 16,
22 page 2853, you told us about the depreciation review
23 committee, who review the life of all of Ontario
24 Hydro's assets. You told us that the committee was
25 comprised of a group of senior technical and financial

1 staff, who meet every year and judge the operating
2 experience of the asset over time.

3 Is that substantially your description of
4 the depreciation review committee?

5 A. I think I described some other
6 factors that they do at the same time. I think you
7 have listed the first of the things they have done.

8 Q. Okay. My question is, does the
9 committee review each existing station each year, or is
10 there a schedule for consideration of different
11 stations at different times?

12 A. No, we review each station each year.
13 Lesser assets are reviewed on a rolling five-year
14 basis.

15 Q. To whom does that committee report?

16 A. To the vice-president of finance, I
17 believe.

18 Q. Does the committee make
19 recommendations with respect to the extension of
20 existing stations?

21 A. Extension? In what sense?

22 Q. Extension of the life of the units.

23 A. Oh, yes.

24 Q. Does that committee or did the system
25 planners have access to that information from the

1 depreciation review committee?

2 A. I am on the depreciation review
3 committee, and I am assistant planner.

4 Q. Were life extensions of existing
5 facilities considered as an alternative within the
6 Demand/Supply Plan?

7 A. I'd refer that to another panel who
8 deals with the plans. I believe that is Panel 10.

9 Q. Thank you. The rest of my questions
10 are for you, Ms. Ryan.

11 Thank you, Mr. Taborek.

12 Ms. Ryan, in your direct evidence at
13 Volume 16, page 2743, you testified that Ontario Hydro
14 defines the environment to include:

15 "....the natural system of air, water,
16 land, plants, animals, including human
17 beings and their interaction, social,
18 cultural and economic interaction with
19 the system."

20 You also testified at Volume 16, page
21 2746, lines 4 to 6, that one of the purposes or that
22 the purpose of the environment decision is to

23 "....provide a focus to the environment."

24 Now, during cross-examination by Mr.
25 Grenville-Wood on behalf of the Solar Energy Society of

1 Canada, he asked you about whether environment division
2 takes into account public feelings about or perceived
3 public views about issues. And that was, if you'd like
4 to turn that up, was Volume 23, page 4130, beginning on
5 line 16. I am sorry, 4129, beginning on line 17, where
6 he asked you:

7 Question: "So, is it then fair to say
8 that you in your analysis as a division
9 takes no account of the public feelings
10 about or perceived public views about
11 issues?"

12 And you went on, after Mr. Grenville-Wood
13 gave you an example at the bottom of page 4129, and
14 continuing on page 4130, you answered at line 16 of
15 page 4130, starting at line 16:

16 "The specific socio-economic
17 implications of our plans and projects
18 and the community impacts of our plans
19 and projects are, in fact, taken into
20 account by Ontario Hydro as a whole, and
21 Corporate Relations Branch specifically.
22 If you're talking to me as a
23 representative of environment division,
24 then we are certainly and participate,
25 but it is not we who have the lead role."

1 My question is, what is the rationale for
2 that division of responsibility, particularly between
3 environment division and corporate relations,
4 particularly given the broad definition that Ontario
5 Hydro gives to the environment, and in light of
6 environment division's purpose to provide a focus to
7 the environment or for the environment?

8 MS. RYAN: A. I think the rationale is
9 probably historical development in that corporate
10 relations have had a role in socio-economic analyses
11 and interfacing with communities for quite some time.
12 Environment division is a much newer division, two
13 years old, and by definition of environment, there is
14 overlap, but that is not to say that it can't work
15 effectively.

16 Q. So, I take it that there is a
17 considerable amount of coordination between environment
18 division and corporate relations, so that the total
19 definition of environment is not bifurcated or split in
20 any way when it comes to decisions?

21 A. Very much so.

22 Q. Would that be fair?

23 A. Yes.

24 Q. I'd like to move on, Ms. Ryan to,
25 discuss with you the subject of flyash from plants

1 using fossil fuels. And if these questions get too
2 detailed for you, please advise me which panel I can
3 direct them to.

4 In your direct testimony, Volume 16, page
5 2767, you discussed ash produced from Ontario Hydro's
6 fossil fuel stations. And at one point on that page,
7 line 17 to 19, you explain that in 1990 all of
8 Lakeview's ash was sold.

9 From an answer that you gave to Dr.
10 Connell on page 2891, Volume 16, lines 22 to 25, you
11 can turn that up if you wish, but I don't think it is
12 necessary. From the answer that you gave to Dr.
13 Connell, I take it that you are aware of Ontario
14 regulation No. 138/90, which came into effect on
15 September 1, 1990, and took away the previously
16 existing assumption that flyash was not hazardous, and,
17 in fact, regulated that testing of flyash should now be
18 done. I take it you are aware of that regulation?

19

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...

1 [11:15 a.m.] A. I am aware that our flyash is tested,
2 yes.

3 Q. So, with respect to the answer that
4 you gave about Lakeview and all of its ash being sold,
5 am I correct to assume that leachate testing was done
6 on the ash after September 1st, 1990, and that all of
7 that ash passed the leachate test, given that all of it
8 was sold?

9 A. Okay. My assumption would be yes,
10 but I don't have that specific information.

11 Q. Do you know who, or on which panel?

12 A. Panel 8, which is the fossil panel,
13 will have that.

14 Q. Thank you. To your knowledge has any
15 of Ontario Hydro's flyash failed the leachate test
16 since the regulation came into effect in September of
17 1990?

18 A. My understanding is that the ash from
19 Lennox, which is an oil-fired station, does not pass
20 the leachate test, but that is the only one.

21 Q. Do you know what Ontario Hydro does
22 with that ash that fails the leachate test?

23 A. My understanding is that it is
24 handled as a waste material by an independent
25 contractor.

1 Q. For more specifics on that, could I
2 ask Panel 8?

3 A. Yes.

4 Q. Do you know, with respect to the
5 existing system, has provision been made at the various
6 fossil fuel stations of Ontario Hydro for separate
7 storage, handling and transportation of flyash that
8 fails the leachate test?

9 A. I don't know specifically if they
10 have designated a separate area. Certainly each site,
11 except Lakeview, has a designated area for flyash, so,
12 it would be procedural to implement that. But again
13 Panel 8 would know that.

14 Q. Panel 8, okay.

15 Are you familiar with the government
16 review document, Exhibit 146?

17 A. I have looked at it briefly.

18 Q. One of my clients, the Ministry of
19 Labour --

20 A. I must tell you, I didn't look at the
21 Ministry of Labour section; I looked at Environment.

22 Q. I don't think it will be necessary
23 for the question, but if you want to defer the question
24 to someone else, that is fine.

25 The Ministry of Labour's comments -

1 unfortunately, Mr. Chairman, the pages are not
2 numbered, so it's hard to locate the Ministry of
3 Labour's comments, but they are about the middle of the
4 document, in between the Ministry of Trade and
5 Technology and Ministry of Municipal Affairs, if that
6 helps.

7 THE CHAIRMAN: Go ahead.

8 MS. COUBAN: Fine, thank you.

9 Q. In the letter to Mr. Marc Eliesen,
10 Deputy Minister of Energy, the Deputy Minister of
11 Labour made the comment in his letter dated May 22,
12 1990:

13 "There are a number of these concerns
14 which are relevant to the Ontario Hydro
15 Demand/Supply Plan which I believe could
16 usefully have been mentioned in that
17 document."

18 They go on to list three items. I would
19 like to turn your attention to item 3(c), where they
20 mention that it would have been useful to have some
21 information about the health effects of flyash from
22 fossil fuel plants.

23 My question is: Does Ontario Hydro have
24 any such studies on the health effects of flyash from
25 fossil fuel plants?

1 MS. RYAN: A. To my knowledge, other
2 than monitoring for fugitive dust and dust fall, no.
3 But I know in light of these types of comments, the
4 specific option panels are trying to find out more
5 information in those areas. So, the fossil panel would
6 be more prepared to discuss that type of information.

7 Q. Fine. Thank you.

8 Now, if I could turn your attention -
9 still discussing the flyash issue - to Exhibit 21, the
10 State-of-the-Environment Report for 1989, and to page
11 XV, and the top paragraph, which begins: "Approval was
12 received..." And the second sentence states -- well, I
13 should read the whole paragraph:

14 "Approval was received from the Board
15 of Directors for the conversion to a dry
16 ash handling system at Nanticoke TGS from
17 the current wet system. This conversion
18 will have a number of advantages:

19 Reduction of dust emissions during high
20 winds, reduction of ash leaching,
21 reduction in landfill requirements, and
22 increased opportunity to market the ash."

23 Now, that comment was made in the 1989
24 State-of-the-Environment Report prior to Ontario
25 regulation 138/90 coming into effect in 1990. Was

1 Ontario Hydro doing testing of ash leaching before the
2 regulation came into effect?

3 A. My understanding is that we have done
4 leachate testing on all of our flyashes.

5 Q. Prior to the regulation coming into
6 effect?

7 A. Prior to the regulation, and in
8 anticipation of the regulation.

9 Q. Do you know when that testing began?

10 A. No, I don't.

11 Q. Again, Panel 8 perhaps could help me.

12 A. Yes.

13 Q. Thank you. Do you know if any of the
14 samples that Ontario Hydro was testing prior to the
15 regulation coming into effect indicated leaching from
16 the samples?

17 A. Leaching in the absolute or leaching
18 which would not allow it to pass.

19 Q. Leaching that would not allow it to
20 pass the test.

21 A. I don't believe so. But again, I
22 don't have that specific information.

23 Q. Do you know if any of the results of
24 the tests were made public or relayed to anyone, for
25 example, within the Ministry of the Environment prior

1 to the regulation coming into effect?

2 A. I don't know that. The test results
3 would be documented, but whether or not the Ministry
4 was on distribution, I don't know.

5 Q. Okay. Thank you.

6 Staying with Exhibit 21 but on a slightly
7 different subject, I have minor point of clarification.
8 If we could turn to page 7, and the section on that
9 page is entitled "Conclusions", and the second item
10 discusses examples of the corporate environmental
11 activities which occurred in 1989, and it lists six
12 concepts. One of those concepts -- well, I will read
13 the paragraph:

14 "New environmental principles,
15 including the six concepts of leadership,
16 integrating the environment into the
17 decision-making, wise use of resources,
18 auditing performance, consultation, and
19 accountability were drafted and agreed
20 to, by senior management."

21 My question is with respect to
22 accountability. If that corporate environmental
23 principle or concept was incorporated in 1989, what
24 does that suggest about accountability, prior to the
25 1989, within Ontario Hydro, if anything?

1 A. The principle of accountability was
2 to do more with ensuring that all employees were aware
3 of the responsibility, and that, in fact, business
4 partners, contractors, would be covered under that.
5 And that's not to say that it wasn't part of the
6 current practice. It was just reinforcing it in a
7 principle.

8 Q. It does describe it, though, as a new
9 environmental principle, and I will put the emphasize
10 on the "new".

11 Can you explain that, why it was called
12 the new principle?

13 A. The group of principles were new
14 environmental principles. Certainly the concept of
15 accountability was not new; it was the emphasis on
16 looking at a broader requirement for business partners.

17 Q. Thank you. On page 61 of Exhibit 21,
18 under the heading "Mercury in Reservoirs", 11.2.1, the
19 second paragraph refers to Ontario Hydro establishing a
20 comprehensive **mercury** research program to be initiated
21 in 1990. Can you tell us whether that program has been
22 initiated?

23 A. Yes, it it has.

24 Q. And what is the status of that
25 program?

1 A. I believe there is an exhibit which
2 more fully describes our mercury and reservoir program,
3 but certainly the research mentioned with Hydro Quebec
4 and Canadian Freshwater Institute is under way.

5 And I was going to add that on Panel 6
6 there will be people more informed of the specific
7 studies.

8 Q. Fine. Thank you.

9 Do you know when the report is expected,
10 the final report?

11 A. No, I don't, off the top of my head.

12 Q. Again Panel 6 should be able to help
13 with that?

14 A. Yes.

15 Q. Thank you. If I could refer you to
16 Interrogatory 2.32.5, which is an interrogatory from
17 the government. The interrogatory asked:

18 "The outline of Panel 2 states that
19 the environmental performance of the
20 existing system for acid gas emissions,
21 used fuel management, and flooding and
22 mercury are to be addressed. We were
23 unable to find any written evidence in
24 Chapter 4 of the Demand/Supply Plan, DSP,
25 where these issues were addressed."

1 In the response you referred us to
2 Exhibit 21, the State-of-the-Environment Report.

3 Now, for example, on the issue of
4 flooding or water management, the response referred my
5 clients to section 11.3.1 of Exhibit 21, which is on
6 page 63, and there is a section on page 63 of Exhibit
7 21, numbered 11.3.1, dealing with water level
8 management? Is that the only place in the DSP where
9 this environmental issue is dealt with or is that the
10 only place where that issue is dealt with as it relates
11 to Panel 2?

12 A. My understanding is that it is the
13 only place for Panel 2. However, with the hydraulic
14 panel and the work that's being done there, they would
15 be able to address it with respect to the hydraulic
16 system.

17 Q. So, that response refers to those
18 sections in Exhibit 21 only for the purposes of Panel 2
19 and that is not intended to be an extensive or
20 exclusive discussion of those issues?

21 A. That's right. I would expect the
22 options panel, fossil, No. 8 for acid gas, nuclear; No.
23 9 for used fuel management and No. 6 for flooding and
24 mercury to provide for detail.

25 Q. Fine. Thank you. If I could again

1 refer you to Exhibit 146, the government review, and to
2 the Ministry of the Environment's comments within that
3 review. I think it would be important for you to turn
4 that up, if you could. That's about a third of the way
5 into the document.

6 Do you have that in front of you?

7 A. Yes.

8 Q. If you could turn to page 2, please.

9 And just so that we are on the same --

10 THE CHAIRMAN: Page?

11 MS. COUBAN: Page 2.

12 THE CHAIRMAN: Page 2, just to make sure
13 we all have it.

14 MS. COUBAN: It's the page that has in
15 the middle of it "Risk Assessment."

16 THE CHAIRMAN: Right. We all have it.

17 MS. COUBAN: Thank you.

18 Q. Now, if I could look at the paragraph
19 directly above the heading "Risk Assessment", and the
20 sentence at the bottom of that top paragraph which
21 begins, "A quantitative assessment...." If I could
22 read that quote or comment. It states:

23 "A quantitative assessment of the
24 environmental and health effects of the
25 present generating system and future

1 incremental emissions from Hydro
2 facilities should be provided. The
3 discussion should include the
4 contribution by other sources."

5 Is it Ontario Hydro's position that such
6 a quantitative assessment of the environmental and
7 health effects of the present generating system has
8 been provided?

9 MS. RYAN: A. I guess to the extent that
10 the State-of-the-Environment Report quantifies
11 emissions and environmental monitoring has demonstrated
12 the measured results within the environment, yes.

13 Q. So, you would refer me to
14 State-of-the-Environment Report--

15 A. Yes.

16 Q. --for a response to that comment?

17 A. I think especially with the sentence,
18 "contribution by other sources," I think in doing the
19 type of quantitative assessment that I think is being
20 referred to here, is not something that Ontario Hydro
21 alone can do.

22 I think it is something that, if it is
23 going to be done in a quantitative way and be
24 meaningful, it has to include other stakeholders such
25 as other industries, government and interest groups.

1 So, for Ontario Hydro to go the one step further or
2 several steps further from what we have done in
3 measuring emissions and doing some environmental
4 monitoring that I had referred to before, takes a
5 larger effort than we, as one company, can do.

6 Q. So, that would refer to the last
7 comment, which is the discussion should include the
8 contribution from other sources.

9 A. Yes.

10 Q. But with respect to the first part
11 that have comment, in terms of the assessment of the
12 environmental health effects of Ontario Hydro's present
13 system, you refer me to the State-of-the-Environment
14 Report; is that correct?

15 A. Yes.

16 Q. And that's for 1989, I presume.

17 A. Yes.

18 MRS. FORMUSA: Sorry. I might just
19 mention a later panel also that will address this and
20 that will be Panel 10. The contribution of the
21 existing system in the future cases is dealt with in
22 the environmental analysis, it's the first reference I
23 turn up, because you will recall that the existing
24 system carried us through to about the year 2000.

25 So, in terms of, for instance,

1 atmospheric emissions over that period, and then you
2 add the different cases on to that, you have the
3 contribution from the existing system and how that
4 system will look as we get to the year 2014 and then
5 with the addition of new facilities, and that's for the
6 evaluation in Panel 10. So, that is the split between
7 the existing existing system as we have it now and what
8 its contribution will be in the future.

9 THE CHAIRMAN: Unless I missed it, there
10 has been no evidence at all in Panel 2 about health
11 effects.

12 MRS. FORMUSA: That's correct, and those
13 would be dealt with in Panel 10 in terms of the
14 evaluation of the cases.

15 In terms of the each of the options,
16 hydraulic, fossil, transmission and nuclear, with
17 respect to the option itself, health impacts and
18 environmental impacts will be dealt with in the options
19 panels. Put them all together, once you have a case in
20 Panel 10, evaluate them, and then a comparison.

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...

1 [11:34 a.m.] MS. COUBAN: If I could ask a question?
2 So, the separate panels will deal with the health
3 effects of the existing system, as well as the plan,
4 whatever is planned, is that correct?

5 MRS. FORMUSA: Yes, to the extent that we
6 have split the existing system up between this panel
7 and the later option panels. Our experience with
8 mercury, for instance, on hydraulic, on the existing
9 system, and its potential impact on future options,
10 that will be the option panels, that is correct.

11 MS. COUBAN: Thank you.

12 Would you like to take the morning break,
13 Mr. Chairman?

14 THE CHAIRMAN: How close are you to
15 finishing?

16 MS. COUBAN: Relatively close. Probably
17 15 minutes or so.

18 THE CHAIRMAN: Well, perhaps we should
19 take the morning break.

20 THE REGISTRAR: This hearing will recess
21 for 15 minutes.

22 ---Recess at 11:35 a.m.

23 ---On resuming at 11:54 p.m.

24 THE REGISTRAR: This hearing is again in
25 session. Please be seated.

1 MS. COUBAN: Q. Continuing with the
2 government review, Ms. Ryan and specifically the
3 Ministry of the Environment's comments on page 2, I
4 think I know the answer to this question after Ms.
5 Formusa's explanation, but if you could just confirm on
6 the record, please, that the comment under the heading
7 "Risk Assessment," beginning with the sentence,

8 "However no quantitative assessment of
9 the risks and environmental effects of
10 the various electricity generation
11 options present and planned, as well as
12 for the selected plans, is provided."

13 Do I take it that the response to that
14 comment would be left with the specific panels dealing
15 with the specific options and the specific plans?
16 Would that be correct?

17 MS. RYAN: A. Yes, my understanding is
18 that the option panels will deal with that, and then
19 Panels 10 and 11 will bring it together.

20 Q. So, those panels will deal with the
21 assessment of risks and environmental effects?

22 A. That is my understanding.

23 Q. Thank you.

24 If we could go to the second paragraph
25 under the heading "Risk Assessment" on page 2 of the

1 Ministry of the Environment's comments, and if we could
2 take that paragraph in parts, and dealing first with
3 the first sentence, where it states:

4 "Air emission estimates given appear
5 to be based on stable operation of each
6 plant. Only limited assessment has been
7 noted on the potential for emergency
8 releases, problems during start ups and
9 shut downs, bypasses of control
10 equipment, atypical operations
11 generally."

12 Do you agree with that comment?

13 A. My understanding is that those sorts
14 of things would be accommodated in the assessment, but
15 again, if you are talking the future options, then the
16 individual panels would be the ones to go to. For the
17 State-of-the-Environment Report, where we report
18 emissions from the existing system, it would be all
19 emissions.

20 Q. Yes, I was only directing the
21 question with respect to the existing system, because
22 that is what this panel is dealing with.

23 So, it is your evidence then that the air
24 emission estimates that you have given to this panel as
25 evidence have included emergency releases, problems

1 during start-ups and shut-downs, et cetera, the other
2 items that have been listed in that comment, is that
3 correct?

4 A. To my knowledge, yes, in that they
5 contribute to our annual emissions.

6 Q. Another comment made in that
7 paragraph is that:

8 "The risk associated with such
9 emergencies is also capable of analysis,
10 which would be valuable."

11 Which I assume it means that such an
12 analysis has not been done. That is, the comment
13 suggested such an analysis has not been done.

14 Such a risk assessment or a risk
15 associated with such emergencies, is it your evidence
16 that such an assessment has been done with respect to
17 the existing system?

18 A. Certainly for our nuclear stations,
19 part of the safety analysis does this type of risk
20 assessment, and that would be dealt with in Panel 9.

21 For fossil stations, the shut-down
22 specific control equipment has been assessed from an
23 emission quantity point of view.

24 MR. SNELSON: A. The reliability indices
25 report, which is an estimate of the performance of our

1 plant, includes estimates of the performance of the
2 acid gas control measures, which gets factored into
3 plans.

4 Q. Do you know the exhibit number of
5 that report?

6 A. The most recent one is part of
7 Exhibit 148.

8 Q. Thank you, Mr. Snelson.

9 Would you agree, Ms. Ryan, with the final
10 comments in that paragraph that a full evaluation would
11 require a description of the consequences to the
12 environment of such emissions? Would you agree with
13 that comment?

14 MS. RYAN: A. Certainly those types of
15 emissions would have to be taken into account.

16 Q. Thank you. Dealing with the subject
17 of emissions from nuclear plants, in your direct
18 testimony, specifically at Volume 16, I don't think you
19 have to turn this up, Volume 16, page 2759, lines 24 to
20 25, and continuing over to page 2760, lines 1 to 2, you
21 discussed that Ontario Hydro has set as an operating
22 standard a standard of one per cent of the regulated
23 limit for emissions from nuclear plants. Is that
24 correct?

25 A. Yes.

1 Q. Could you tell us why Ontario Hydro
2 set it at 1 per cent as opposed to .5 of a percent or
3 10 per cent or any number? Do you know why one per
4 cent was chosen?

5 A. I can't tell you specifically the one
6 per cent, but at the time the stations were being
7 designed and constructed, an evaluation of risk, both
8 workers' safety and public safety, indicated that
9 technology existed, and it was certainly of benefit to
10 get down to that level, and so it was done.

11 Q. Would Panel 9 be able to give me more
12 details on why the one per cent was set as an operating
13 standard?

14 A. They may well be able to.

15 MS. COUBAN: Perhaps I could ask Ms.
16 Formusa, would they be able to assist me on that?

17 MRS. FORMUSA: There would be experts on
18 that panel with respect to the details of nuclear. We
19 will take notice of your question, and I think they
20 will be able to.

21 MS. COUBAN: Fine, thank you.

22 Q. Now, Ms. Ryan, you also said at
23 Volume 25, page 4522, lines 12 to 15, where you were
24 discussing with Ms. DeQuehen the emission standard for
25 nuclear plants, and you said:

1 "As I pointed out, the standard is
2 being re-evaluated and has been over a
3 number of years and is likely to be
4 lowered, and it may perhaps be a
5 five-fold lowering, but it hasn't been
6 done yet."

7 I'm wondering on what basis do you say
8 that it may be a five-fold lowering? What is the basis
9 for your statement in that regard?

10 MS. RYAN: A. My understanding from
11 those people within Ontario Hydro that are reviewing
12 the document from the Atomic Energy Control Board is
13 that what is being suggested is a five-fold lowering.

14 Q. By whom is that being suggested?

15 A. By the Atomic Energy Control Board,
16 based upon the international standard for public dose.

17 Q. Thank you.

18 THE CHAIRMAN: So, if I'm right then, if
19 everything remained the same, instead of being less
20 than one per cent, you'd be less than five per cent, if
21 there was a five-fold lowering. Would that be right?

22 MS. RYAN: That is correct.

23 MS. COUBAN: Q. Ms. Ryan, I take it you
24 are familiar with the New Energy Directions Policy of
25 the provincial government? Are you familiar with that

1 policy?

2 THE CHAIRMAN: I am sorry, what was that
3 policy?

4 MS. COUBAN: Sorry, the New Energy
5 Directions policy? I referred to it in my opening
6 statement.

7 THE CHAIRMAN: Yes.

8 MS. COUBAN: I believe it has been
9 referred to a number of times in motions.

10 THE CHAIRMAN: Right.

11 MS. COUBAN: I'm not sure, Mr. Chairman,
12 whether it has been entered as an exhibit. I was
13 assuming it had, but discussing it with Ms. Formusa,
14 I'm not sure that it has.

15 I don't think it has been entered yet as
16 an exhibit, Mr. Chairman. I was going to refer very
17 briefly to it. I don't know if it is necessary to have
18 it...

19 THE CHAIRMAN: Perhaps you could put it
20 in. Then if anyone wants to refer to it again, we'll
21 have it.

22 Number?

23 THE REGISTRAR: It will be No. 177, Mr.
24 Chairman.

25 THE CHAIRMAN: Thank you.

1 ---EXHIBIT NO. 177: New Energy Directions Policy.

2 MR. SNELSON: Perhaps we could have a
3 copy.

4 MS. COUBAN: Q. I was going to refer you
5 very briefly, Ms. Ryan, to one aspect of this policy of
6 the new provincial government under the heading "What
7 The New Energy Directions Are." Second sentence
8 states:

9 "The Government has imposed a
10 moratorium on the development of new
11 nuclear power stations and is taking
12 action to ensure that more is done to:"

13 lists a few items, and the third one is

14 "Secure greater involvement of
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]

26 With respect to Hydro's ongoing
27 activities, does Ontario Hydro have statistics on the
28 number of northern and/or native people involved in its
29 projects? And actually this may not be most
30 appropriately directed to you, so anyone on the panel
31 who can answer, please feel free.

32 MR. SNELSON: A. My understanding is
33 that Ontario Hydro did recently conduct a voluntary

1 survey of all of its employees, and I believe it was
2 voluntary, because of the difficulties of imposing any
3 classification of people by racial origin. One of the
4 questions that people were asked to respond to, if they
5 wished, was whether or not they considered themselves
6 to be aboriginal people. I can't recall the results of
7 that survey, but that survey was done.

8 Q. When was it done?

9 A. My recollection is that it was done
10 last year, but that is...

11 Q. So, that was done prior to the
12 introduction of the New Energy Directions Policy?

13 A. I don't know.

14 MS. COUBAN: Could I get a transcript
15 undertaking for the stat date of that survey and also
16 the results of that survey?

17 MRS. FORMUSA: Yes. 142.86?

18 ---UNDERTAKING NO. 142.86: Ontario Hydro undertakes to
19 provide the status date and results of a
recently conducted voluntary survey of
20 all of its employees.

21 MS. COUBAN: Q. I understand the
22 sensitivity with respect to asking about origin of
23 individuals, but with respect to geographical location
24 of employees, specifically with respect to employment
25 of northern communities or people living in the north,

1 has Ontario Hydro any such survey indicating the
2 geographical distribution of its employees?

3 MR. SNELSON: A. I'm sure we must have
4 such records. As to their current work locations, I
5 presume they live close to where they work.

6 MS. COUBAN: Could I get that
7 information, please?

8 MRS. FORMUSA: To the extent that I
9 imagine we must have something collected in terms of
10 how many employees would be in a particular region, I
11 will at least start with that gross amount of
12 information, and see what kinds of breakdowns we have.
13 That will be 142.87.

14 MS. COUBAN: That is fine, thank you.

15 ---UNDERTAKING NO. 142.87: Ontario Hydro undertakes to
16 provide any survey indicating the
17 geographical distribution of its
18 employees with respect to geographical
19 location of employees, specifically with
respect to employment of northern
communities or people living in the
north.

20 MS. COUBAN: Q. Has Ontario Hydro, since
21 the introduction of the New Energy Directions Policy,
22 taken any steps to secure greater involvement of
23 northern or native people in its ongoing activities?

24 MR. SNELSON: A. I don't know the
25 specifics, Ms. Couban. I believe that we have an

1 ongoing desire to involve northern people in such
2 activities as our hydraulic development, but to what
3 degree that has been intensified since the Energy
4 Directions Policy or predicated the Energy Directions
5 Policy, I don't know.

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1 [12:10 p.m.] Q. Do you know who would know that
2 information?

3 A. I believe that as regards the
4 hydraulic developments, then Panel 6 would be the best
5 people to deal with that and that is clearly a northern
6 issue in most cases.

7 MRS. FORMUSA: I can also advise that at
8 least in terms of Panel 6, we responded to
9 interrogatories with respect to the details of the
10 consultation programs and which groups. We usually
11 don't put how many numbers, but it will tell you how
12 many come out to information centres and whatnot, and
13 that information has been provided. It's also appended
14 to our environmental assessments.

15 So, to the extent that the information is
16 available, it can be dealt with in further detail in
17 the options panels.

18 MS. COUBAN: Thank you. Those are my
19 questions, Mr. Chairman. Thank you.

20 Thank you, Panel.

21 THE CHAIRMAN: Thank you.

22 I take it there is no one else who wishes
23 to cross-examine this panel?

24 EXAMINATION BY DR. CONNELL:

25 Q. I would like to raise one matter

1 about acid gas, and particularly about SO(2). This
2 really is inviting the panel to speculate, but I
3 wondered if in 1980, Ontario, perhaps in collaboration
4 with other jurisdictions, had adopted a policy of
5 tradeable permits that might have embraced all of North
6 America or perhaps the northeast region, I wonder if
7 the panel can speculate as to whether that might have
8 been easier to adapt to from the point of view of
9 administration and control, and whether it would have
10 been as effective or more effective than the regulatory
11 approach.

12 MR. TABOREK: A. Technically and
13 economically it would have been preferred. From the
14 point of view of the Ontario public it would not.

Indeed, we attempted to, and we had for a
brief period of time, a variant of a trading scheme in
one of our regulations, it was called banking. We were
trading with ourselves from year to year. And the
reason we narrowed it down to that restricted sense was
that we did not feel that we could trade with others.
We felt that we had to be seen to be fitting -- well,
to be taking action on our own plants.

1 idea of trading was not well received. And I think our
2 judgments in that respect were vindicated in that
3 within a year or two after receiving the banking
4 provision in our regulation, it was withdrawn at the
5 recommendation of a legislative committee who looked at
6 it, and so it is no longer there.

7 Q. Do you think it's conceivable that a
8 system of tradeable permits could be superimposed on
9 existing regulatory mechanisms in anticipation that
10 ceilings would be progressively lowered over the
11 subsequent decade or two?

12 A. Yes, sir. I think that there are now
13 several factors that make that more likely, well, three
14 factors.

15 One is the inherent sense in doing it; it
16 is better for the environment, it's better for the
17 economy.

18 The second is that I believe society
19 would now act on the basis that they have taken a large
20 step towards solving the problem and they are now
21 refining the solution.

22 And the third is the fact of diminishing
23 returns or increasing cost for additional measures
24 makes such an action more and more desirable
25 economically. And we, in respect, to the NOx

1 regulations that are being put forward, we are doing
2 work and discussing trading options with people.

3 Q. Do you have any opinion as to whether
4 a system of tradeable permits would be most suitably
5 applied at the level of the producers or at the level
6 of the consumers of coal?

7 A. I have not really thought of the coal
8 mines. But my immediate reaction to that would be that
9 it should be offered at the level, at the consumer --
10 well, the utility level because they have the most
11 option to trade off. And that by their purchasing
12 directions -- and that the suppliers of coal would
13 respond.

14 So, I would most appreciate in our
15 programs if I had that control to do trade-offs and
16 things of that nature.

17 Q. Do you think that such a system for
18 utilities could also embrace other large users or do
19 you think the utilities should be segregated?

20 A. No. In principle there should be the
21 widest possible application of the principle. I have
22 heard somebody say that fish don't care if the SO(2) is
23 from Inco or from Hydro. And there are major
24 opportunities, I think I may have mentioned that, in
25 developing the cost effectiveness and the allocations

1 of the overall program. Roughly it emerges that cuts
2 in SO(2) at smelters, for instance, are about 1/10th
3 the cost of the same cut at a utility, and so there are
4 major benefits to be made.

5 Q. Right. May I just ask you briefly to
6 speculate on the same questions with respect to CO(2),
7 whether regulation or carbon tax or tradeable permits
8 might offer the greatest attractions and effectiveness?

9 A. I don't believe I have thought that
10 through, sir, and I don't think I could contribute
11 anything sensible.

12 DR. CONNELL: Thank you.

13 THE CHAIRMAN: Mrs. Formusa, redirect?

14 MRS. FORMUSA: I think Mr. Barrie had one
15 correction.

16 MR. BARRIE: If I could just have this
17 opportunity to correct something from yesterday. It
18 was during a discussion about the unit at Lambton
19 coming off.

20 THE CHAIRMAN: Could we have a look at
21 the transcript? That might be the best way of doing
22 it.

23 MR. BARRIE: Yes. Page 4807, Volume 27.

24 MRS. FORMUSA: This is something that Mr.
25 Hunter asked us to correct. It was an undertaking that

1 we gave to him and we thought it was best that Mr.
2 Barrie address it.

3 THE CHAIRMAN: Right. What page, please,
4 Mr. Barrie?

5 MR. BARRIE: 4807, on line 15, that was
6 me speaking. I said how fast was brought that unit up,
7 and it should be "down." We were discussing the
8 Lambton unit coming down. And at the bottom of the
9 page we made the undertaking, that we used the phrase
10 how fast the Lambton unit was brought up, and again
11 it's how fast the Lambton unit was brought down.

12 Mr. Hunter asked me to correct that. We
13 were already providing it on down. It didn't make
14 sense on up, anyway.

15 THE CHAIRMAN: Fine.

16 MRS. FORMUSA: I have no questions for my
17 panel. I do have two comments that I wanted to make.

18 I first of all wanted to thank my
19 colleagues and the intervenors who cooperated with me
20 in giving me materials in advance for the panel, and
21 for their cooperation in dividing their
22 cross-examination between this panel and the later
23 panels.

24 With respect to that matter, I want to
25 advise the Board that we are systematically going

1 through our notes and the transcripts to ensure that
2 the later panels have their attention drawn to the
3 matters which were referred to them, and we hope that
4 nothing will slip between the cracks, and that's what
5 we are doing.

6 MS. PATTERSON: I was just wondering this
7 morning whether it would be helpful to have those
8 questions answered in writing if they are on the
9 record, or is that just more work than it's worth?

10 MRS. FORMUSA: In many cases I felt
11 throughout the course of the cross-examination that we
12 have been responding to them in interrogatories. I
13 suspect in many cases, if we haven't got the question
14 in writing we will. Of course, I think we have now
15 passed the deadline for questions for Panel 6. I don't
16 really want to invite more written questions for Panels
17 1 through to 6 but --

18 MS. PATTERSON: I don't mean more
19 questions in writing. I mean the ones that have been
20 asked of this panel could be given back to the people
21 who asked the questions, in writing.

22 THE CHAIRMAN: The trouble is there are
23 different kinds of questions. For instance, what
24 happened on the leaching tests with the flyash, that's
25 something you could answer right now. But a lot of the

1 questions were of a very general nature which were just
2 sort of introductory to the subject.

3 MRS. FORMUSA: It may be that when we are
4 going through it and systematically assigning matters,
5 if we see something that's very straightforward, in
6 some cases I have said, I think that's an interrogatory
7 and I will tell you. I think what we will try and do
8 is get back to the parties and say, you have asked us
9 this. There is a large volume of interrogatories and I
10 don't expect everyone will go through it and say this
11 answers my question.

12 So, why don't we leave it that we will
13 make our best efforts, where we have an answer ready,
14 we will let the party who asked the question know where
15 that answer may be found.

16 I know Dr. Connell asked two questions at
17 the very beginning about fossil and nuclear matters,
18 and if he would like those answered in writing in
19 advance, we can do that. I have forgotten what they
20 are right now, but I do have them written down. It was
21 one with respect to fossil and one with respect to
22 nuclear. I think it was the composition of the fuels,
23 if I am not mistaken.

24 DR. CONNELL: That's right, yes.

25 MRS. FORMUSA: We can certainly provide

1 those answers to you in writing.

2 Where we have a clear question and we can
3 provide a clear answer, why don't we say we will make
4 our best efforts to get them to the parties in advance
5 who had asked for them. Perhaps work it into the
6 formal interrogatory system as well.

7 THE CHAIRMAN: Why don't we leave it up
8 to you to work it out with the parties, some of them
9 will be better deferred, to be asked of the people who
10 are here, and others that can be readily answered, can
11 be answered.

12 I guess you are keeping some kind of a
13 record, I take it, of the matters that have been so
14 dealt with, and I take it you will coordinate with the
15 parties on those.

16 MRS. FORMUSA: Yes. There may be some
17 where we will want to speak to the parties about
18 clarifying exactly what it was that they were after,
19 and each of us on the various panels will speak to the
20 parties about that.

21 Thank you.

22 THE CHAIRMAN: Do you have any
23 re-examination?

24 MRS. FORMUSA: No, sir, I don't.

25 THE CHAIRMAN: I missed that. No

1 re-examination?

2 MRS. FORMUSA: Much to my panel's
3 disappointment, I am sure.

4 THE CHAIRMAN: Then that completes Panel
5 2 and I thank the panel for its participation.

6 I didn't do that with Panel 1, so they
7 shouldn't feel offended. I will also thank them, too,
8 if you convey that.

9 ---(Panel withdraws.)

10 We are now adjourning until ten o'clock
11 on Monday morning, which is the 17th of June, when we
12 will commence Panel 3.

13 THE REGISTRAR: This hearing will adjourn
14 until Monday morning next at ten o'clock.

15 ---Whereupon the hearing was adjourned at 12:23 p.m.,
16 to be resumed on Monday, June 17, 1991, at
10:00 a.m.

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E R R A T A
and
C H A N G E S

To transcript for Wednesday, the 12th day of June,
1991, Volume 27.

<u>Page No.</u>	<u>Line No.</u>	<u>Discrepancy</u>
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